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Chopsticks in Singapore—Chinese women workers lunch amid warehouse piles of smoked rubber sheets. From ship masters students in Britain learn of Singapore's teeming trade in countless commodities—rubber and tin of Malaya, sugar and oil of Sumatra, tea and silk of China, teakwood and rice of Thailand (Bulletin No. 1).

NATIONAL GEOGRAPHIC PHOTOGRAPHER J. BAYLOR ROBERTS

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officers to every man jack of the crew give their time in this cause, consider how Britain lives.

Voyaging rough waters in this century of rapid change, the United Kingdom remains a maritime nation. Smaller than Oregon and limited in natural resources, it produces only a small part of the food and raw materials it needs to support 50,000,000 people and their industries.

Britain needs a large merchant navy to import food and materials, to export its manufactures, and to transport goods in world markets.

Many British school children are thus destined to enter some phase of the Commonwealth's shipping business. From grammar school through college an essential part of their education is geography. They must learn about the lands and seas of the world and their part in trade.

How Ship Adoption Works—Through frequent letters from master and crew, a school follows its ship's progress. It hears of the ports visited and their inhabitants. From the reports of changing cargo, students learn what Britain supplies countries visited and what it takes in return. They learn about the ship itself and its performance.

To make this practical geography really come alive, visits are exchanged between ship and school whenever the ship reaches a convenient port. Students make repeated inspection tours of their ship, getting acquainted with master and crew, and benefiting from their instruction.

From its London office the British Ship Adoption Society publishes a small periodical, *Our Merchant Ships*, which is sent to participating schools and ships without cost. It contains gems of ship-school correspondence so that all schools may benefit and so that ship personnel may glean ideas on what to include in their letters. It reviews books about the sea and prints articles on the history of ships and shipping.

The society recently published a book, *Seafarers, Ships, and Cargoes*. Starting with a section about ships and ship operation, the small volume continues with ship-to-school letters grouped geographically.

The ship correspondents maintain a lively standard with their accounts of marine phenomena from whales and icebergs to flying fish and ship rats. One master describes teeming Calcutta as he finds it on the very day he writes. Another describes the little Spanish port of Palos from which Columbus sailed in the *Santa Maria* in 1492.

"Dear School"—Another visits the island of Ithaca, home of Odysseus (Ulysses), and finds on the island of Skyros, a "corner of a foreign field that is forever England"—the grave of poet Rupert Brooke, author of this famous line. "Dear School" is the customary salutation.

World War II proved the soundness of the ship-adoption scheme. Because Allied ships which found refuge in British ports were adopted, similar societies flourish today in Norway, Denmark, and the Netherlands. A few schools in the Dominions participate. In Denmark, pupils have been chosen by ballot to take trips on adopted ships.

The British Ship Adoption Society's president is the Queen's current Chancellor of the Exchequer, the Right Honorable R. A. ("Rab") Butler. About 35 citizens, including a few women, compose the Committee of Management. Its members represent ship owners, ship personnel, teachers, school boards, the Geographical Association, the Royal Geographical Society, the Ministry of Education, and the Ministry of Transport.

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GEORGE RODGER, MAGNUM

Desert Croesus—Sheik of British-protected Kuwait banks $150,000,000 a year from oil. In light robe, he inspects his Burgan Oil Field pier-terminal thrusting nearly a mile into the Persian Gulf. It berths eight of Britain's 560 tankers at a time.

Bulletin No. 1, April 26, 1954

British Schools "Adopt" Merchant Ships

Twenty years ago this spring a British experiment in education began when four London schools "adopted" four merchant ships. Purpose of the plan was for pupils to learn about ships, countries, and overseas trade in a practical way from those who man the Commonwealth's argosies.

The idea quickly took hold. In 1936 the growing voluntary association of schools and ships was officially founded on a national basis as the British Ship Adoption Society. Today it lists some 1,100 schools that have adopted as many ships.

Many more schools wanting to take part in the plan find they have literally missed the boat. Though the British Merchant Navy numbers more than 3,000 ships, less than half venture far enough or vary from one set route enough to make them interesting to adopt.

To understand why British merchant-ship personnel from masters and

ENTERED AS SECOND CLASS MATTER APRIL 27, 1943, POST OFFICE, WASHINGTON, D. C., UNDER ACT OF MARCH 3, 1879.
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at this favored site, Dr. Slipher and his associates hope to increase man's knowledge of the atmosphere and surface phenomena of Mars.

The international Mars Committee, formed in 1953, will follow the summer's work of professional observers at sites in Australia, Argentina, India, New Zealand, Japan, and Java, among others. Both the 100-inch telescope at Mount Wilson, California, and the 200-inch Hale instrument on Palomar Mountain will be turned to the task.

An exact measurement of Mars's diameter might change the accepted idea of the origin of the solar system. If its diameter were known, scientists could figure out whether Mars has an iron core as does earth. If it is proved there is no core—and indications are there is none—then Mars could never have been liquid. The theory that all planets might have been thrown off from the sun would be open to increased doubt.

Signs of Life—Markings on Mars are a dark greenish-blue in the Martian summer, turning to a browner shade as fall and winter approach. This has led to conjecture that they are caused by vegetation.

If the Mars study groups can substantiate the presence of plant life—by finding evidence of chlorophyll, for instance—it would prove that life exists on the two planets in our solar system capable of supporting it. The proof would add strength to the possibility that life may be present in other solar systems as well.

Astronomers are also anxious to determine whether there are *canali* on Mars, and, if so, what they are. A network of faint lines frequently has been observed over vast areas of the planet, but the pattern never has been photographed satisfactorily. The canali behave like vegetation.

Blue Cloud Mystery—A fundamental feature of the Martian atmosphere is the "blue envelope" that clouds the planet's surface when pictures are made by a blue light. By red light the opaque cloud is penetrated and surface details may be seen with a powerful enough telescope.

At rare times, however, and particularly near the "opposition" point when the planets approach more closely, the cloud barrier disappears. Then the surface of Mars may be photographed by blue light. The Mars Expedition at Bloemfontein will make an intensive study of this unusual "blue clearing."

Unlike earth's moon, only other body in the heavens whose surface astronomers can photograph regularly, Mars rotates like the earth. A day on Mars, its period of one rotation, is 37 minutes longer than a day on earth. With observatories on duty all around the globe, a round-the-clock watch can be kept on the planet's entire surface. Like earth, Mars is subject to changing weather. The planet, only one seventh the size of the earth, has two moons of its own.

Amateur astronomers will aid the Mars Committee's work by keeping careful watch on Martian weather during 1954. They will help map cloud cover, polar caps, and other rapidly changing features.

References—For additional information, see "First Photographs of Planets and Moon with 200-inch Telescope," in *The National Geographic Magazine*, January, 1953; "Our Universe Unfolds New Wonders," February, 1952; "Mapping the Unknown Universe," September, 1950; "Unlocking Secrets of the Northern Lights," November, 1947; "Split-second Time Runs Today's World," September, 1947; "The Heavens Above," July, 1943; and, in the GEOGRAPHIC SCHOOL BULLETINS, April 5, 1954, "Science Girds for June 30 Eclipse of Sun."

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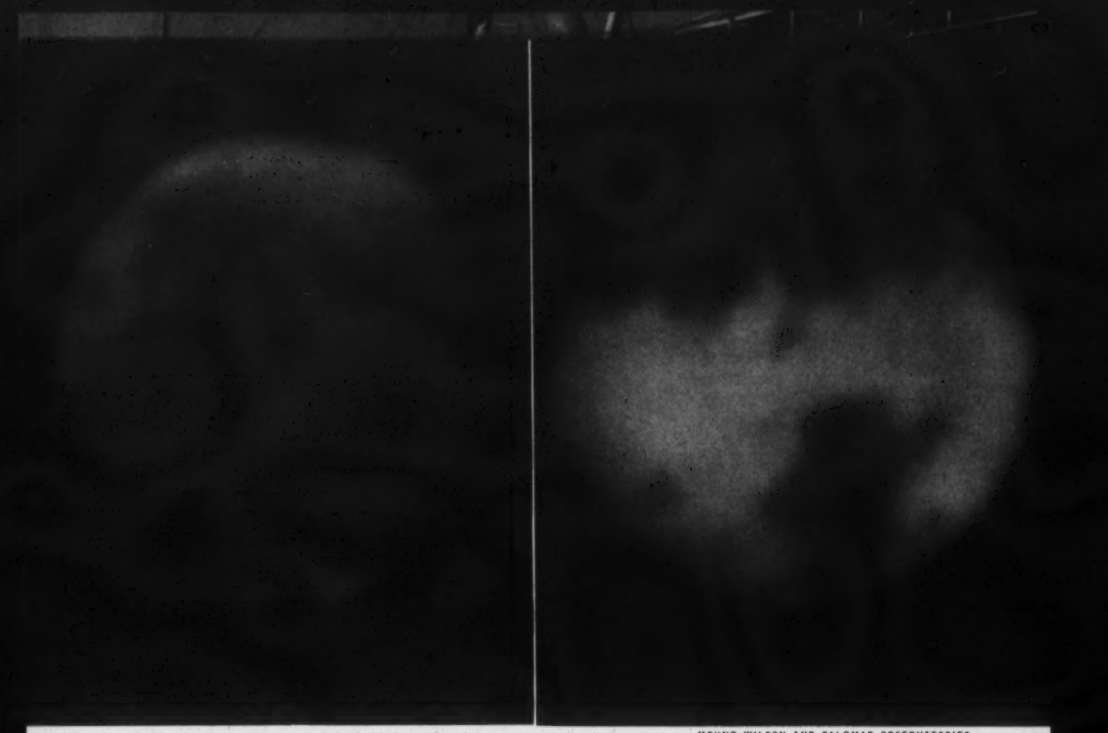

MOUNT WILSON AND PALOMAR OBSERVATORIES

Blue Light Photographs Mars's Atmosphere, Red Penetrates to Its Surface—Palomar Observatory's 200-inch telescope, viewing the planet's cloud envelope (left), catches white areas at poles that appear to be fog above thin layers of snow. Penetrating (right), it sees surface blotches that may be vegetation. But it fails to record the strange network of lines often seen through telescopes but never photographed.

Bulletin No. 2, April 26, 1954

Astronomers Visit Africa to Study Mars

Is there life on Mars? Most scholars agree there may be plant life on the red planet but doubt that intelligent animal life exists there. The question, far from settled, intrigues pure scientists as well as imaginative writers and artists in the popular field of science fiction.

This summer will find astronomers on every continent busy observing Mars. The planet travels an oval orbit around the sun, its distance out ranging from 128,000,000 to 155,000,000 miles. Closer in, the earth follows a more nearly circular path at 93,000,000 miles. In June Mars will come within 40,000,000 miles of the earth, its closest approach since 1941.

At Bloemfontein, Orange Free State, Union of South Africa, a "Mars Expedition" sponsored by the National Geographic Society and Lowell Observatory of Flagstaff, Arizona, has already started its summer's work. Its leader is Dr. E. C. Slipher, who with others at Lowell Observatory has built up an exceptional collection of photographs of planets.

Favored Site—At its near approach in June, Mars will ride high in the southern sky. At Bloemfontein, where the sky is usually clear in summer, the planet will pass almost directly overhead each night. Using the powerful 27-inch refracting telescope of the Lamont-Hussey Observatory

LENNART LARSEN

Serene Jutlander—Skin pores and beard stubble show clearly on this peat-preserved contemporary of Caesar. His condition excels that of the recently discovered Inca boy, estimated to be 400 years old, and other Andean and Egyptian mummies. Geologists determined his age by the depth of peat deposit above him (seven feet) and the pattern of pollen at that level. The cap is of skin with the fur inside.

Another demanding deity was Nerthus, the earth-mother. If she were properly appeased the fields would produce good crops the coming season. Village headmen are believed to have given her their lives for the exalted purpose of ensuring the continued life of their people.

Tollund man may have met his gods in this way. It would explain the mystery of a serene, almost spiritual, expression on the face of an above-average man who had been hanged and thrown naked into a bog.

References—Denmark is shown on the National Geographic Society's map of Europe and the Near East. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

For additional information, see "Lifelike Man Preserved 2,000 Years in Peat," in *The National Geographic Magazine*, March, 1954. *(Issues of The Magazine 12 months old or less are available to schools and libraries at a specially discounted price of 50¢ a copy. Earlier issues are 65¢ a copy through 1946; $1.00, 1930-1945; $2.00, 1912-1929. Write for prices of issues prior to 1912.)*

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Bulletin No. 3, April 26, 1954

Tollund Man: Ambassador from Denmark's Past

The Tollund man, every whisker intact and looking more than faintly pleased with himself, is Denmark's ambassador from the dim past. So lifelike, so human, he might be enjoying an afternoon snooze in his ridiculous leather skullcap. Instead he has been sleeping 2,000 years.

Chemicals in the Tollund peat bog, where he was found in central Denmark, miraculously preserved his features through the millenniums, only darkening the skin.

Contemporary of Caesar—Brutus stabbed Caesar perhaps the year Tollund man died. A few decades later Jesus began teaching in Galilee. Yet when peat cutters came upon the buried figure in 1950, they called the police, thinking the well-preserved body offered the solution to a recent unsolved murder.

Similar finds in other Denmark bogs have made this north European country the only place in the world where one can see and study Bronze Age and Iron Age Man, not as bones which imagination must clothe with flesh, but as full-bodied figures seemingly just dropped off to sleep.

It is the purity of the Tollund man's features that sets him apart from the other peat men. Nowhere has a face so unspoiled come down to us across such a vast gap of time.

One can look at Tollund man's face, as at the Mona Lisa, and conjecture by the hour. Why the tiny smile? He obviously had died by hanging, but why? He just as obviously had been no ordinary criminal, but rather a peasant aristocrat—perhaps a chieftain or leader.

Lived in Harsh Times—A study of pagan practices in the harsh days of predawn Denmark supplies some of the answers. Twenty centuries ago, the precursors of the Danes lived a tribal life similar to certain primitive societies in Africa and New Guinea today. Villages developed so that more men could be mustered for the heavy communal tasks of plowing, tending stock, and building turf houses against the long winters.

The gods looked down pitilessly on the struggle for survival. They demanded sacrifices before granting favors or withholding anger. Odin, or Woden, was especially voracious. But so revered was he by tribesmen of the day that it was considered an honor to be sacrificed to him. Leaders sometimes voluntarily offered themselves to assure their clan's well-being.

The hold of this god over the minds of men has never died. We still recall him every Wednesday (Woden's day). To the Tollund man, Odin was no make-believe puppet. He knew the god had only one eye because he had given up the other for a drink at the Well of Wisdom. Hence he became the god of wisdom and cunning. He also ranked as the deity of the dead.

Sacrificed for the Good of the Village—Only the dead could communicate with the gods. When starvation threatened, when rival tribes pillaged, when disaster struck, villagers sometimes offered the greatest sacrifice—the life of their chieftain. He would describe their plight and secure relief.

est in the poet. The Philadelphia Shakespeare Society is the oldest organization of its kind in existence. The Shakespeare Association of America publishes the only full-fledged journal of Shakespeareana.

A great many American lovers of Shakespeare agree that "the play's the thing" and honor him on the stage. His plays are produced at many colleges, including Antioch, at Yellow Springs, Ohio; Hofstra, at Hempstead, New York; and the Catholic University of America in Washington, D. C. Ashland, Oregon, holds an annual Shakespeare Festival.

Stratford, Connecticut, proposed site for an American Shakespeare Festival Theater and Academy, would become the third town of the name to present the plays of England's most noted dramatist. Shakespeare's birthplace, Stratford on Avon, has a magnificent memorial theater. Last summer many Americans crossed the border into Canada to enjoy a Shakespeare Festival in Ontario's Stratford on the Avon.

References—Stratford on Avon may be located on the Society's map of The British Isles.

For additional information, see "Folger: Biggest Little Library in the World," in *The National Geographic Magazine*, September, 1951; "The British Way," April, 1949; and "Washington—Storehouse of Knowledge," March, 1942.

Quiet, Please!—At the entrance to the Folger Shakespeare Library's reading room, a bust of the famous Elizabethan dramatist sets an example of studious silence. The room is patterned after the English great halls of the days of Elizabeth I and Shakespeare. Priceless volumes fill cases which line the walls in two tiers.

NATIONAL GEOGRAPHIC PHOTOGRAPHER B. ANTHONY STEWART

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Bulletin No. 4, April 26, 1954

America's Shakespeare Treasures Increase

William Shakespeare was christened just 390 years ago today (April 26, 1564). If his christening followed the custom of the time, he was born three days earlier. No certain record has been found of the exact date of his birth.

The Bard of Avon made scant reference to the New World in his plays. But if his spirit could hover over the continent he thus slighted, it would find the United States a treasure house of his work.

Eight American colleges now own valuable First Folios, the volumes in which the playwright's collected works were first published in 1623.

The largest collection of Shakespeareana in the world reposes in the Folger Shakespeare Library in Washington, D. C. Some 240 copies of the famous First Folio edition are known to exist and half of them are estimated to be in the United States, 79 in the Folger Library.

Emerson Inspired Folger's Interest—The library bears the name of its founder, the late Henry Clay Folger. While a student at Amherst College, young Folger's interest in Shakespeare had been stimulated by speeches of Ralph Waldo Emerson. A few years after graduation he bought a reduced facsimile of the First Folio for which he paid $1.25.

From this modest beginning developed the fabulous collection on which he eventually spent $4,500,000. In 1928, after quietly collecting for more than 40 years, Folger announced that he would erect a building to house the library in the Nation's Capital. He purchased property adjoining the Library of Congress, and in 1930 the cornerstone of the beautiful white marble structure was laid. Folger called the library "a kit of tools for the study of Shakespeare."

Administered by Amherst trustees, the library contains a record number of editions of Shakespeare's works, including every known 18th-century edition and many 19th-century printings. There are vast numbers of source books, allusions to Shakespeare and criticisms of his work, and material on the history of the Shakespearean stage.

The library also owns the only document in America known to have actually been in Shakespeare's hands—the deed to his London house. It has 250,000 playbills as well as mementos of famous actors. Sir Laurence Olivier recently gave the script of his motion-picture production of *Henry V* to the Folger.

Although devoted primarily to Shakespeare, the Folger has the New World's most valuable library on the history of English civilization of the 16th and early 17th centuries.

Collections from Coast to Coast—The second-ranking Shakespeare collection in America is at the Huntington Library at San Marino, California. Harvard, Yale, Illinois, and Chicago universities also have outstanding collections, as have the Library of Congress, the Newberry Library in Chicago, and the public libraries of Boston and New York.

Editions of Shakespeare's works are published year after year, and throughout the United States hundreds of societies maintain active inter-

More than four centuries ago the Paraná was the highway of exploration into central South America that led to the founding of Asunción. In 1527 Sebastian Cabot sailed up the river to its junction with the Paraguay and then on to the Pilcomayo.

A decade later a Spanish expedition came that way seeking the "northwest passage" to the continent's legendary wealth of gold and silver. Its leaders, including Domingo Martínez de Irala, governed the region for the next 20 years.

They built a "refuge and shelter" on a fine bay of the Paraguay River. The crude settlement, originally considered only a base for treasure-hunting expeditions, became the permanent city of Asunción and capital of the future Republic of Paraguay.

Air of Frontier City—Asunción today—with its cobbled streets, its colorful market, and donkey-riding country folk—still has the air of a frontier city. Its languid charm is accentuated by rows of fragrant orange trees along broad avenues, luxuriantly flowering parks, and patio gardens of roses, magnolias, jasmine, and gardenias.

Population of the capital district is more than 200,000, one seventh of the whole nation's. Asunción is Paraguay's only big city. As a port, it handles nine tenths of the imports (textiles, machinery, fuels) and the exports (cotton, timber, cattle products, tobacco, and yerba maté, or Paraguayan tea).

Under the dictatorship of "El Supremo"—José Gaspar Rodríguez Francia, who came to power in 1814 after the overthrow of Spanish rule—all foreign trade and travel were halted. Even communication with the outside world was broken off.

El Supremo's successors put an end to the fanatic isolationism. But a series of events led to a devastating struggle against the triple alliance of Paraguay's more populous neighbors, Argentina, Brazil, and Uruguay. In five years of war (1865-1870) half or more of Paraguay's estimated million people were wiped out.

The nation's modern history begins anew from this 1870 foundation of absolute ruin. With most of its young men lost, Asunción and the rest of the country turned to the huge tasks of rebuilding the shattered towns and economy. Only recently has a normal ratio of men to women been re-established.

References—Paraguay is shown on the Society's map of South America.

For further information, see "Through Paraguay and Southern Matto Grosso," in *The National Geographic Magazine*, October, 1943; and "River-Encircled Paraguay," April, 1933 (out of print; refer to your library).

See also, in the GEOGRAPHIC SCHOOL BULLETINS, January 5, 1953, "Ruins on Paraná River Recall Bygone Era."

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FENNO JACOBS FROM THREE LIONS

Nuestra Señora de la Asunción—Paraguay's capital and only sizable city bears this long official name. Asunción was 82 years old when the Pilgrims landed at Plymouth. West across the Paraguay River lies the Gran Chaco, forest and pastureland plain. Busy water-front piers adjust to the river's rainy season rise.

Bulletin No. 5, April 26, 1954

Paraguay Welcomes New Overseas Trade

In the heart of South America, an old inland city almost 1,000 river miles from the ocean is expanding its transatlantic business.

Asunción, capital of landlocked Paraguay, recently turned out to cheer a visiting freighter of a British merchant line (Bulletin No. 1). It inaugurated service which will operate monthly from Liverpool without the usual transshipment at Buenos Aires, Argentina.

For Paraguayans this new direct overseas traffic is a break in the vast land barrier that has long made their country one of the world's most isolated regions.

Where Two Rivers Meet—Asunción is linked to the Atlantic by two of the country's three great rivers—the 2,000-mile Paraná and its tributary, the Paraguay, which drains the heart of the nation. The capital stands at the confluence of the Paraguay and the Pilcomayo that starts in the Andes of southwest Bolivia.

It is a four-day trip by small steamer up the two rivers to Asunción. The distance is no greater than from the Gulf of Mexico up the Mississippi and Ohio rivers to Pittsburgh, but currents and frequent channel shifts in the deep Paraguay complicate its navigation.

Long Oars Propel a Harbor Lighter at Bridgetown

Sugar-bowl Barbados is easternmost of West Indies islands. Small schooners crowd its shallow inner harbor at Bridgetown. Big ships anchor outside in sheltered Carlisle Bay.

As in similar ports the world around, boatmen shuttle small craft between ship and shore transferring passengers and freight.

From British merchantmen visiting Barbados, schools in Britain (Bulletin No. 1) learn that the island takes rice, flour, fodder, meat, lumber, textiles, and machinery in exchange for its sugar, rum, molasses, lime, and cotton. Unlike the volcano-built Windward Islands near by, Barbados is porous coral. Bridgetown, like London, has its Trafalgar Square and Nelson Monument.

CHARLES ALLMON,
NATIONAL GEOGRAPHIC STAFF